Appendix I. Kings Beach Commercial
Core Improvement Project
Preliminary Delineation of
Wetlands and Other Waters of
the United States and USACE
Verification Letter

Kings Beach Commercial Core Improvement Project



Preliminary Delineation of Wetlands and Other Waters of the United States

Placer County, California 03-PLA-28 KP 14.79/16.53 (PM 9.19/10.27) EA 03-198-0C9300



November 2006





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List of Abbreviated Terms

U.S. Army Corps of Engineers Clean Water Act Corps

CWA

GPS global positioning system

OHWM ordinary high water mark

SR State Route

U.S. Geological Survey **USGS**

Preliminary Delineation of Wetlands and Other Waters of the United States

1. Summary

This report presents the results of a delineation of wetlands and other waters of the United States conducted for the Kings Beach Commercial Core Improvement Project study area in Kings Beach, California. On September 19 and 20, 2006, a Jones & Stokes botanist/wetland ecologist and a soil scientist delineated wetlands and other waters of the United States in the delineation study area to assist the Placer County Department of Public Works in determining the location and extent of areas that likely would be subject to regulation by the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act (CWA). The delineation was conducted in accordance with the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and in compliance with the Sacramento District of the Corps' Minimum Standards for Acceptance of Preliminary Wetland Delineations (U.S. Army Corps of Engineers 2001). A total of 0.329 acre of jurisdictional wetlands and 0.390 acre of other waters of the United States were delineated, for a grand total of 0.719 acre of waters of the United States in the delineation study area. Eleven intermittent drainage ditches were observed within the delineation study area but were interpreted to be outside the scope of Corps jurisdiction under Section 404 because they appear to have been excavated in uplands for the purpose of drainage and do not appear to have replaced any previously existing natural stream features. All jurisdictional boundaries and determinations presented in this report are preliminary and subject to verification by the Corps' Sacramento District.

1.1. Contact Information

Project Proponent

Placer County Department of Public Works: Tahoe Design Division

Pioneer Commerce Center, 10825 Pioneer Trail, Suite 105

Truckee, CA 96161

Office: 530/581-6231 (Dan LaPlante)

Fax: 530/581-6239

Contact: Dan LaPlante or Ken Grehm (530/889-7615)

Delineator

Jones & Stokes 2600 V Street Sacramento, CA 95818 Office: 916/737-3000

Fax: 916/737-3030

Contact: Scott Frazier (ext. 3110)

2. Site Description and Location

The delineation study area is located in eastern Placer County on the north shore of Lake Tahoe (Figure 1). It encompasses approximately 74.78 acres of residential and commercial parcels located adjacent to State Route (SR) 28 in Kings Beach (Figure 1). A list of the parcels in the study area is provided in Table 1.

The study area appears on the U.S. Geological Survey (USGS) 7.5-minute Kings Beach quadrangle in the SE ¼ of Section 13, Township 16 North, Range 17 East, and portions of the West ½ of Section 19, Township 16 North, Range 18 East, Mount Diablo Base and Meridian (Figure 1). The latitude and longitude for the approximate center of the project site are 39°14'00" north and 120°01'00" west. Slope gradients at the project site generally range from 0% to 5%, and elevations range from approximately 6,250 to 6,400 feet above mean sea level. To reach the project site from Sacramento, travel east on Interstate 80 and take SR 267 south to its junction with SR 28.

2.1. Precipitation and Growing Season

The closest National Weather Service cooperative weather station to the study area is located approximately 7.5 miles southwest of the delineation study area at an elevation of 6,350 feet above mean sea level (Western Regional Climate Center 2006) (Figure 1). Climate data from this weather station are presented here as a reasonable approximation of the temperature, precipitation, and growing season length for the delineation study area.

The mean annual precipitation is 31.88 inches, the mean annual maximum temperature is 56.1°F, and the mean annual minimum temperature is 30.6°F (Western Regional Climate Center 2006). The length of the growing season (based on 28° air temperature thresholds at a frequency of five years in 10) is approximately 130 days and typically extends from late May to early October in most years (Western Regional Climate Center 2006).

2.2. Vegetation

The delineation study area consists primarily of ponderosa pine woodland and residential and commercial developments but also contains a riparian woodland corridor along Griff Creek and ruderal areas. These communities are described below.

Ponderosa Pine Woodland

Ponderosa pine woodland occurs in the majority of the study area amid residential and commercial development. This plant community is characterized by an overstory composed mainly of ponderosa pine with lesser amounts of Jeffrey pine, incense cedar, and white fir. The shrub understory consists of manzanita and mountain rose. The herbaceous layer is composed of a mixture of grasses and forbs, including squirreltail, thickspike wheatgrass, small oniongrass, common tansy, and Eaton's aster.

Riparian Woodland

The riparian woodland community that occurs in the delineation study area exists adjacent to Griff Creek and is characterized by an overstory of mountain alder, black cottonwood, and Pacific willow. Yellow willow, American dogwood, and thimbleberry comprise the shrub

Table 1. Project Site Parcels

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Placer County Assessor's Parcel Number	Area within Delineation Study Area (Acres)
090-064-001	0.29
090-064-012	0.22
090-064-013	0.15
090-064-026	0.14
090-064-027	0.29
090-067-013	0.14
090-067-014	0.14
090-067-022	0.07
090-067-023	0.07
090-067-026	0.14
090-067-029	0.18
090-071-001	0.14
090-071-002	0.14
090-071-003	0.22
090-071-005	0.16
090-071-008	0.16
090-071-017	0.29
090-071-018	0.09
090-071-019	0.21
090-071-021	0.19
090-071-022	0.09
090-071-023	0.41
090-071-025	0.07
090-071-026	0.12
090-071-028	0.28
090-071-029	0.30
090-071-030	0.55
090-071-031	0.13
090-071-033	0.28
090-071-034	0.35
090-072-001	0.07
090-072-002	0.18
090-072-003	0.11
090-072-004	0.06
090-072-006	0.24
090-072-009	0.18
090-072-016	0.08
090-072-017	0.11
090-072-018	0.03
090-072-019	0.06
090-072-023	0.05
090-072-024	0.09
090-072-026	0.43
090-072-027	0.29
090-072-028	0.43
090-072-029	0.29
090-072-030	0.33
090-072-030	0.14
090-074-001	0.86
090-074-004	0.14
090-074-005	0.07
090-074-006	0.07
090-074-007	0.14
090-074-008	0.14
090-074-009	0.22
090-074-009	0.29
090-074-010	0.07
090-074-013	0.07
090-074-013	0.14
U3U-U14-U14	0.07

Table 1. Continued

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Placer County Assessor's Parcel Number	Area within Delineation Study Area (Acres)
090-074-018	0.29
090-074-020	0.94
090-074-021	0.04
090-074-022	0.04
090-075-001	0.03
090-075-002	0.06
090-075-009	0.07
090-075-010	0.06
090-075-014	0.39
090-075-016	0.14
090-075-017	0.24
090-075-018	0.17
090-075-019	0.11
090-075-020	0.11
090-075-025	0.21
090-080-001	0.20
090-080-002	0.21
090-080-004	0.51
090-080-005	0.12
090-080-006	0.28
090-080-007	0.62
090-080-009	0.82
090-080-017	0.95
090-080-018	0.62
090-080-022	0.36
090-080-023	0.66
090-121-010	0.29
090-121-010	0.29
090-121-013	0.14
090-121-013	0.14
	0.43
090-121-017 090-121-019	0.14
090-121-019	0.22
090-121-023	0.58
090-122-001	0.43
090-122-002	0.37
090-122-004	0.15
090-122-005	0.20
090-122-010	0.09
090-122-014	0.15
090-122-017	0.18
090-122-019	0.29
090-122-021	0.31
090-122-022	0.14
090-122-023	0.21
090-122-024	0.21
090-122-025	0.14
090-122-026	0.14
090-122-027	0.14
090-122-028	0.14
090-122-030	0.14
090-122-031	0.36
090-122-033	0.11
090-122-034	0.10
090-122-035	0.06
090-122-036	0.09
090-123-001	0.23
090-123-006	0.66

Table 1. Continued

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Placer County Assessor's Parcel Number	Area within Delineation Study Area (Acres)
090-123-008	0.17
090-123-009	0.16
090-123-010	0.17
090-123-011	0.16
090-123-015	0.05
090-123-016	0.13
090-123-017	0.10
090-123-018	0.06
090-123-019	0.02
090-123-021	0.08
090-123-022	0.29
090-123-023	0.30
090-123-024	0.22
090-123-025	0.04
090-123-026	0.13
090-123-027	0.10
090-123-027	0.10
090-124-020	0.07
090-125-001	0.29
090-125-019	0.07
090-125-025	0.14
090-125-026	0.07
090-126-014	0.36
090-126-017	0.11
090-126-020	0.29
090-126-021	0.18
090-126-022	0.18
090-126-024	0.29
090-126-025	0.32
090-126-032	0.10
090-126-037	0.14
090-126-038	0.36
090-126-039	0.14
090-126-040	0.14
090-133-003	0.15
090-133-005	0.36
090-133-006	0.05
090-133-007	0.26
090-133-008	0.27
090-133-009	0.16
090-133-010	0.22
090-133-011	0.17
090-133-012	0.40
090-133-015	0.51
090-133-016	0.13
090-133-018	0.26
090-134-001	0.26
090-134-002	0.17
090-134-005	0.35
090-134-006	0.17
090-134-007	0.18
090-134-008	0.27
090-134-011	0.20
090-134-017	0.33
090-134-023	0.17
090-134-023 090-134-024 090-134-029	0.17 0.37 0.29

Table 1. Continued

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990-134-034 900-134-035 900-134-035 900-134-035 900-134-039 900-134-039 900-134-042 900-134-042 900-134-043 900-134-043 900-134-044 900-134-046 900-134-046 900-134-046 900-134-046 900-134-046 900-134-046 900-134-046 900-134-046 900-135-030 900-135-030 900-135-030 900-135-032 900-135-033 900-135-033 900-135-034 900-135-035 900-135-036 900-135-036 900-135-037 900-135-038 900-13	Placer County Assessor's Parcel Number	Area within Delineation Study Area (Acres)
090-134-035 0.03 0.18 090-134-042 0.28 090-134-043 0.20 090-134-044 0.08 090-134-044 0.08 090-134-045 0.08 090-134-046 0.08 090-134-046 0.08 090-134-046 0.08 090-135-030 0.08 090-135-030 0.08 090-135-030 0.08 090-135-030 0.08 090-135-033 0.16 090-135-033 0.16 090-135-033 0.16 090-135-033 0.16 090-135-034 0.16 090-135-034 0.16 090-135-035 0.16 090-135-035 0.16 090-135-035 0.16 090-135-035 0.16 090-135-036 0.17 090-135-036 0.17 090-135-037 0.25		
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090-221-016 0.34 090-221-018 0.10		
090-221-018 0.10		
090-221-019 0.29		
	090-221-019	0.29

Table 1. Continued

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Placer County Assessor's Parcel Number	Area within Delineation Study Area (Acres)
090-221-020	0.21
090-221-021	0.10
090-222-016	0.19
090-222-017	0.14
117-180-001	0.46
117-180-003	0.32
117-180-005	1.11
117-180-006	0.16
117-180-007	0.15
117-180-009	0.50
117-180-012	0.24
117-180-027	0.79
117-180-028	0.78
117-180-036	0.23
117-180-037	0.23
117-180-038	0.23
117-180-039	0.22
117-180-050	0.19
117-180-052	0.66*
117-180-048	0.66*
117-180-047	0.66*
117-180-046	0.66*
117-180-045	0.66*
117-180-044	0.66*
117-180-043	0.66*

^{*} This number represents a collective acreage for these parcels. Individual parcel acreages were not available from Placer County's parcel information website http://www.placer.ca.gov/Home/Assessor/Assessment%20Inquiry/20Iframe.aspx.

understory, and the herbaceous layer contains long-anthered rush, mugwort, and small-fruited bulrush.

2.3. Ruderal Areas

Ruderal (i.e., disturbed) areas are located throughout the delineation study area. Ruderal areas primarily occur immediately adjacent to roads but also were observed adjacent to several of the sediment detention basins in the delineation study area. These areas typically consist of bare soil but may be vegetated with one to two species of annual grasses (i.e., quackgrass and thickspike wheatgrass).

2.4. Surface Hydrology

Griff Creek, a perennial stream that drains much of the area in and around the City of Kings Beach, originates approximately 1 mile east of Martis Peak and flows south through the western portion of the delineation study area, where it crosses under SR 28 and discharges into Lake Tahoe (Exhibit A). Other than Griff Creek, no other major drainages occur in the delineation study area, but a number of manmade, intermittent drainage ditches convey local snowmelt and stormwater runoff to Lake Tahoe via a stormwater collection system.

2.5. Soils

Soils in the delineation study area were mapped by the U.S. Soil Conservation Service during their survey of soils in the Lake Tahoe Basin (Rogers 1974). A total of four soil map units occur within the boundaries of the delineation study area (Figure 2). The general characteristics of the soils that occur within these map units are summarized in Table 2. Of the four soil map units that occur within the delineation study area, only the Beaches map unit is known to contain hydric inclusions (Natural Resources Conservation Service 1992).

Table 2. Soil Map Units in the Study Area

	Soil Map Unit			Hydric
Symbol.a	Name	Drainage	Hydric Soils ^a	Criteria ^b
JhC	Jabu stony sandy loam, moderately fine subsoil, variant, 2% to 9% slopes	Well drained	No hydric components or inclusions	N/A
Ве	Beaches	Well drained	Watah (inclusion) Marla (inclusion) Tahoe, silt loam (inclusion)	4 2B3 2B2
Gr	Gravelly alluvial land	Somewhat poorly drained to poorly drained	No hydric components or inclusions	N/A
UmD	Umpa very stony sandy loam, 5% to 15% slopes	Well drained	No hydric components or inclusions	N/A

Notes:

- Sources: Rogers 1974; Natural Resources Conservation Service 1992.
- The hydric soil criteria are defined as (from Natural Resources Conservation Service 1992): Hydric Criteria 2B2, 2B3, and 4:
 - 2. Soils in Aquic suborders, Aquic subgroups, Albolls suborder, Salorthids great group, Pell great groups of Vertisols, Pachic subgroups, or Cumulic subgroups that are:
 - B. poorly drained or very poorly drained and have:
 - 2) a frequently occurring water table at less than 0.5 feet from the surface for a significant period (usually more than 2 weeks) during the growing season if permeability is equal to or greater than 6.0 in/hr in any layer within 20 inches.
 - 3) a frequently occurring water table at less than 1.0 feet from the surface for a significant period (usually more than 2 weeks) during the growing season if permeability is less than 6.0 in/hr in any layer within 20 inches.
 - 4. Soils that are frequently flooded for long duration or very long duration during the growing season.

3. Methods

The following information was reviewed for this delineation:

- Kings Beach USGS 7.5-minute topographic map;
- aerial photographs of the delineation study area (flown by Majors in October 1999);
- soil survey of the Tahoe Basin (Rogers 1974);
- wetland delineation reports for portions of the delineation study area completed by Harding ESE (2001) and Mactec Engineering and Consulting (2003, 2006).

On September 19 and 20, 2006, a Jones & Stokes botanist/wetland ecologist and a soil scientist delineated wetlands and other waters of the United States located within the boundaries of the delineation study area. The delineation was conducted in accordance with the routine onsite determination method described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and in compliance with the Sacramento District of the Corps' *Minimum Standards for Acceptance of Preliminary Wetland Delineations* (U.S. Army Corps of Engineers 2001). Vegetation, soil, and hydrology data collected at eight data points during the delineation were recorded on wetland determination data sheets, which are located in Appendix A.

The scientific names of plants observed during the delineation or mentioned in the text, as well as their wetland indicator status, are provided in Appendix B. Scientific names follow *The Jepson Manual* (Hickman 1993), as updated by the Jepson Online Interchange, an online database maintained by the University of California and the Jepson Herbaria. The wetland indicator status of each species listed was obtained from Reed (1988).

A resource-grade global positioning system (GPS) unit was used to record the location of jurisdictional boundaries, data points, and other pertinent features wherever possible. The GPS data were downloaded and corrected in the office using the nearest available base-station data. The acreage of each feature was calculated in the ArcGIS program. Data were subsequently overlaid onto the aerial photo base to prepare the delineation map.

4. Results

A total of 0.719 acre of waters of the United States, consisting of 0.329 acre of wetlands and 0.390 acre of other waters of the United States, were identified within the boundaries of the delineation study area (Table 3). Intermittent drainage ditches also were observed in the delineation study area but were interpreted to be outside the scope of Corps jurisdiction under Section 404 of the CWA. The general characteristics and interpreted jurisdictional status of each feature mapped within the delineation study area are described below. Representative photographs of the wetlands and other waters observed within the delineation study area are located in Appendix C.

Table 3. Wetlands and Other Waters of the United States Found in the Delineation Study Area

Feature Type	Acres
Depressional Wetlands	0.329
Perennial Stream (Griff Creek)	0.204
Lake Tahoe	0.186
Total	0.719

4.1. Wetlands Depressional Wetlands

A total of seven depressional wetlands were found within the boundaries of the delineation study area (Exhibit A). Five of these wetlands (DW-1 to DW-5) are sediment detention basins that receive most of their hydrologic inputs from drainage ditches and that drain via corrugated metal standpipe drains. The sixth depressional wetland (DW-6) is a roadside depression that retains enough water, primarily in the form of surface runoff, to support hydrophytic vegetation. The seventh depressional wetland (DW-7) is located immediately adjacent to Lake Tahoe and

Hydrophytic plant species commonly observed in the depressional wetlands were big-leaf sedge, fewflower spikerush, American bulrush, Baltic rush, iris-leaved rush, long-anthered rush, yellow willow, and Mexican rush.

receives water primarily via a culvert at its north end.

Depressional wetlands in the delineation study area were interpreted to have wetland hydrology based on observed drainage patterns and the presence of saturated soil. The soils observed in these depressional wetlands were determined to be hydric based on a low-chroma matrix (≤ 1) or, in areas where the soil had been disturbed recently, the presence of obligate hydrophytes and primary indicators of wetland hydrology (Appendix A, data sheets DP-1, DP-3, DP-5, and DP-7).

Wetland Boundaries and Jurisdictional Status

All of the depressional wetlands mapped within the study area support hydrophytic vegetation, contain hydric soils, and exhibit a positive indicator of wetland hydrology (Appendix A, data sheets DP-1, DP-3, DP-5, and DP-7). Accordingly, they all meet the definition of a wetland as described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratories 1987). Surrounding upland areas lack positive indicators of one or more of these parameters (Appendix A, data sheets DP-2, DP-4, DP-6, and DP-8).

Water that spills out of the sediment detention basins (DW-1 to DW-5) enters the stormwater collection system and appears to end up in Lake Tahoe, a navigable water of the United States. When water overflows from DW-6, it appears to flow into Griff Creek. DW-7 is located on the shore of the lake, so when it overflows, the water spills directly into Lake Tahoe.

Based on these apparent hydrologic connections to Lake Tahoe, it is concluded that all of the depressional wetlands in the delineation study area are within the scope of Corps jurisdiction under Section 404 of the CWA.

4.2. Other Waters of the United States *Perennial Stream*

Griff Creek is a perennial stream that begins approximately 1 mile east of Martis Peak and flows south through the western portion of the delineation study area (Exhibit A). The jurisdictional width (i.e., the distance between opposing ordinary high water marks [OHWMs]) of the reach that flows through the delineation study area ranges from 3 to 30 feet (Exhibit A). The OHWM was identified based on the geomorphic characteristics of the stream channel (namely shelving). The reach supports a narrow band of riparian trees and shrubs that are primarily located above the OHWM.

Jurisdictional Status

Griff Creek is hydrologically connected to Lake Tahoe, a navigable water of the United States. As such, it is concluded that Griff Creek falls within the scope of Corps jurisdiction under Section 404 of the CWA.

Lake Tahoe

Lake Tahoe is a navigable water of the United States and falls within the scope of Corps jurisdiction under Section 404 of the CWA. In the absence of adjacent wetlands, the limit of Corps jurisdiction over Lake Tahoe is the OHWM, which was has been set at an elevation of 6,229.10 feet above mean sea level by the Corps' Sacramento District (U.S. Army Corps of Engineers 2005). Using this OHWM elevation, Jones & Stokes calculated that the project area includes 0.186 acre of jurisdictional Lake Tahoe (Exhibit A).

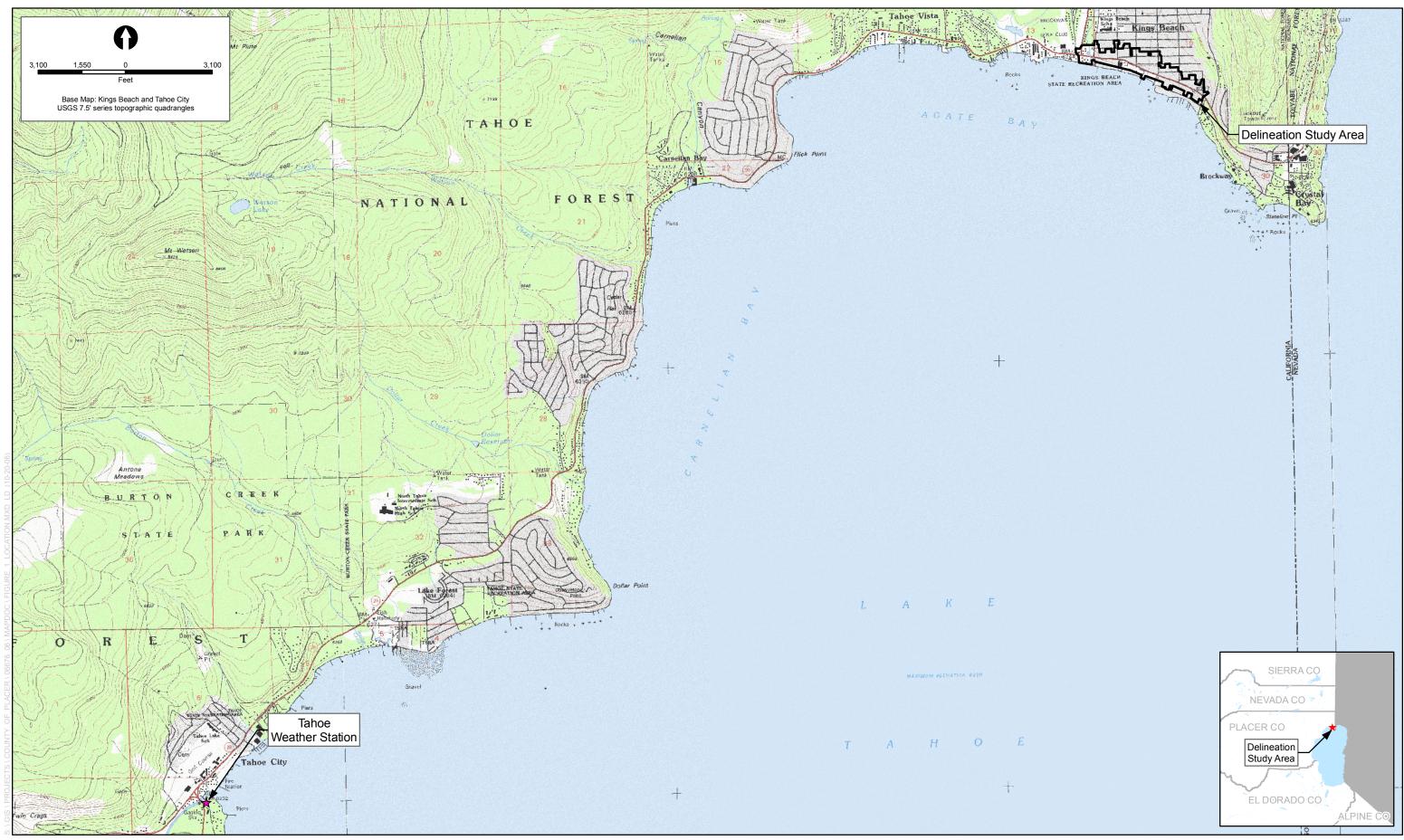
Nonjurisdictional Drainage Ditches

A number of manmade drainage ditches were observed within the boundaries of the delineation study area (Exhibit A). The ditches appear to flow intermittently during periods of snowmelt and intense rainfall and are either unvegetated or are vegetated with upland grasses such as squirreltail, quackgrass, thickspike wheatgrass, and tall oatgrass. Although water conveyed by these drainage ditches appears to discharge into Lake Tahoe via an underground stormwater collection system, they appear to have been excavated in uplands for drainage purposes and do not appear to have replaced any previously existing natural stream features. As such, it is concluded that these intermittent drainage ditches are outside the scope of Corps jurisdiction under Section 404 of the CWA.

5. References Cited

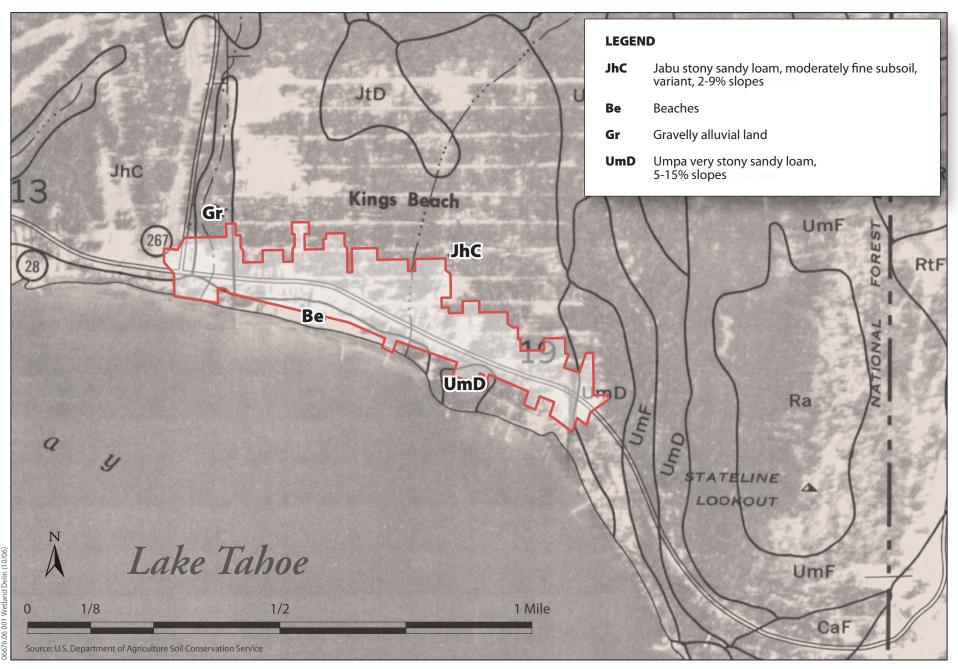
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1 (online edition). Available: http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/pdf/delineation_manual.pdf>. Accessed: September 2006.
- Harding ESE, Inc. 2001. Kings Beach Commercial Core Improvement Project, Placer County, California—Wetland Delineation and Waters of the U.S. Inventory. August 6. Prepared for Timothy Kiser, Placer County Department of Public Works. Carson City, NV.
- Hickman, J. C. (ed.). 1993. *The Jepson Manual: Higher Plants of California*. Berkeley, CA: University of California Press.
- Mactec Engineering and Consulting, Inc. 2003. Kings Beach Water Quality Improvement Project, Placer County, California—Wetland Delineation and Waters of the U.S. Inventory. January. Prepared for Placer County Department of Public Works. Carson City, NV.
- ———. 2006. Kings Beach Commercial Core Improvement Project, Placer County, California— Waters of the U.S. Inventory. March. Prepared for Placer County Department of Public Works. Carson City, NV.
- Natural Resources Conservation Service. 1992. *Hydric Soils List for Tahoe Basin Area, California and Nevada*. Davis, CA.
- Reed, P. B., Jr. 1988. *National List of Plant Species that Occur in Wetlands: California (Region 0)*. (Biological Report 88 [26.10].) Washington, DC: U.S. Fish and Wildlife Service Research and Development. Prepared for National Wetlands Inventory, U.S. Fish and Wildlife Service, Washington, DC.
- Rogers, J. H. 1974. *Soil Survey: Tahoe Basin Area California and Nevada*. March. U.S. Soil Conservation Service in cooperation with the Regents of the University of California (Agricultural Experiment Station).

- University of California. 2006. The Jepson Online Interchange. University and Jepson Herbaria. Last updated: October 2, 2006. Available: http://ucjeps.berkeley.edu/interchange.html>. Accessed: October 2006.
- U.S. Army Corps of Engineers. 2001. *Minimum Standards for Acceptance of Preliminary Wetland Delineations*. November 30. Sacramento, CA: Regulatory Branch, Sacramento District.
- U.S. Army Corps of Engineers. 2005. General Permit No. 16: Minimal Impact Activities, the Lake Tahoe Basin. October 1. Sacramento, CA: Regulatory Branch, Sacramento District.
- Western Regional Climate Center. 2006. Historical Climate Information, Tahoe, California (Station 048758). Available: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca8758>. Accessed: September 26, 2006.



Jones & Stokes

Figure 1 Project Location



Jones & Stokes

Figure 2 Soils Survey Map

Exhibit A Preliminary Delineation of Wetlands and Other Waters of the United States

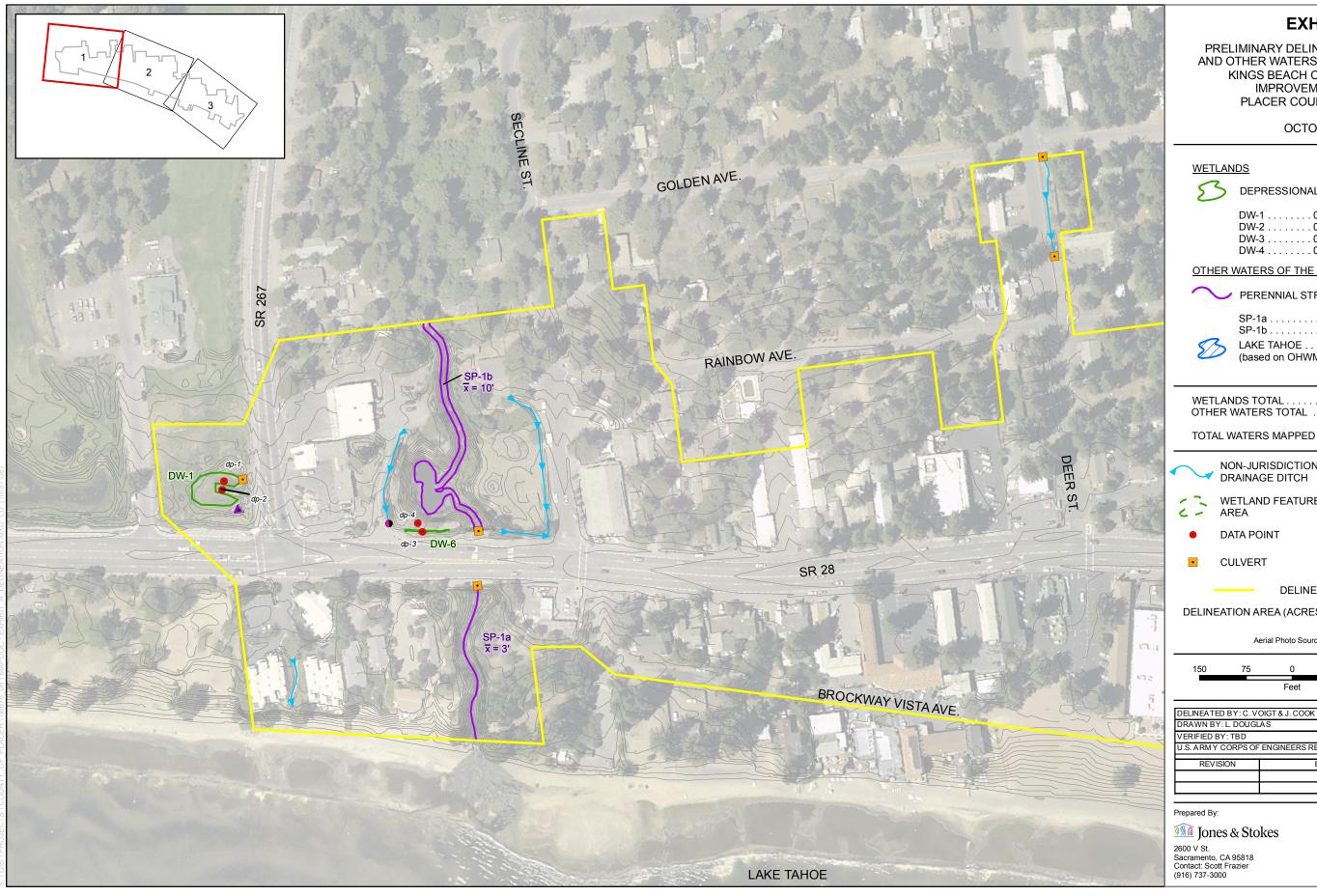


EXHIBIT A

PRELIMINARY DELINEATION OF WETLANDS AND OTHER WATERS OF THE UNITED STATES KINGS BEACH COMMERCIAL CORE IMPROVEMENT PROJECT PLACER COUNTY, CALIFORNIA

OCTOBER 2006

	WETLAN	<u>DS</u>		AREA (ACRES)	
	3	DEPRESSION	ONAL WET	LAND 0.329	
12.		DW-1 DW-2 DW-3 DW-4	0.099	DW-6 0.002	
	OTHER \	WATERS OF	THE U.S.		
	\sim	PERENNIAI	LSTREAM	(GRIFF CREEK) 0.204	
State of the last	8	SP-1a SP-1b LAKE TAHO (based on O	E		
	OTHER V	VATERS TOT	AL		
1		N-JURISDIC AINAGE DIT		TERMITTENT	
1	Z WE		TURE OUT	SIDE OF DELINEATION	
1	• DA	TA POINT		DETENTION BASIN DRA	AIN
	. cu	LVERT	•	STORM DRAIN INLET	
T		DE	LINEATION	I AREA BOUNDARY	
7	DELINEATI	ON AREA (A	CRES)	74.7	'8
,		Aerial Photo	Source: Major	s, October 1999	

Prepared By:

Jones & Stokes

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Prepared For:

Placer County Department of Public Works Pioneer Commerce Center 10825 Pioneer Trail, Suite 105 Truckee, CA 96161 Contacts: Ken Grehm and Dan LaPlante, P.E. Phone: (530) 889-7615 and (530) 581-6231

SEPTEMBER 2006

SEPTEMBER 2006

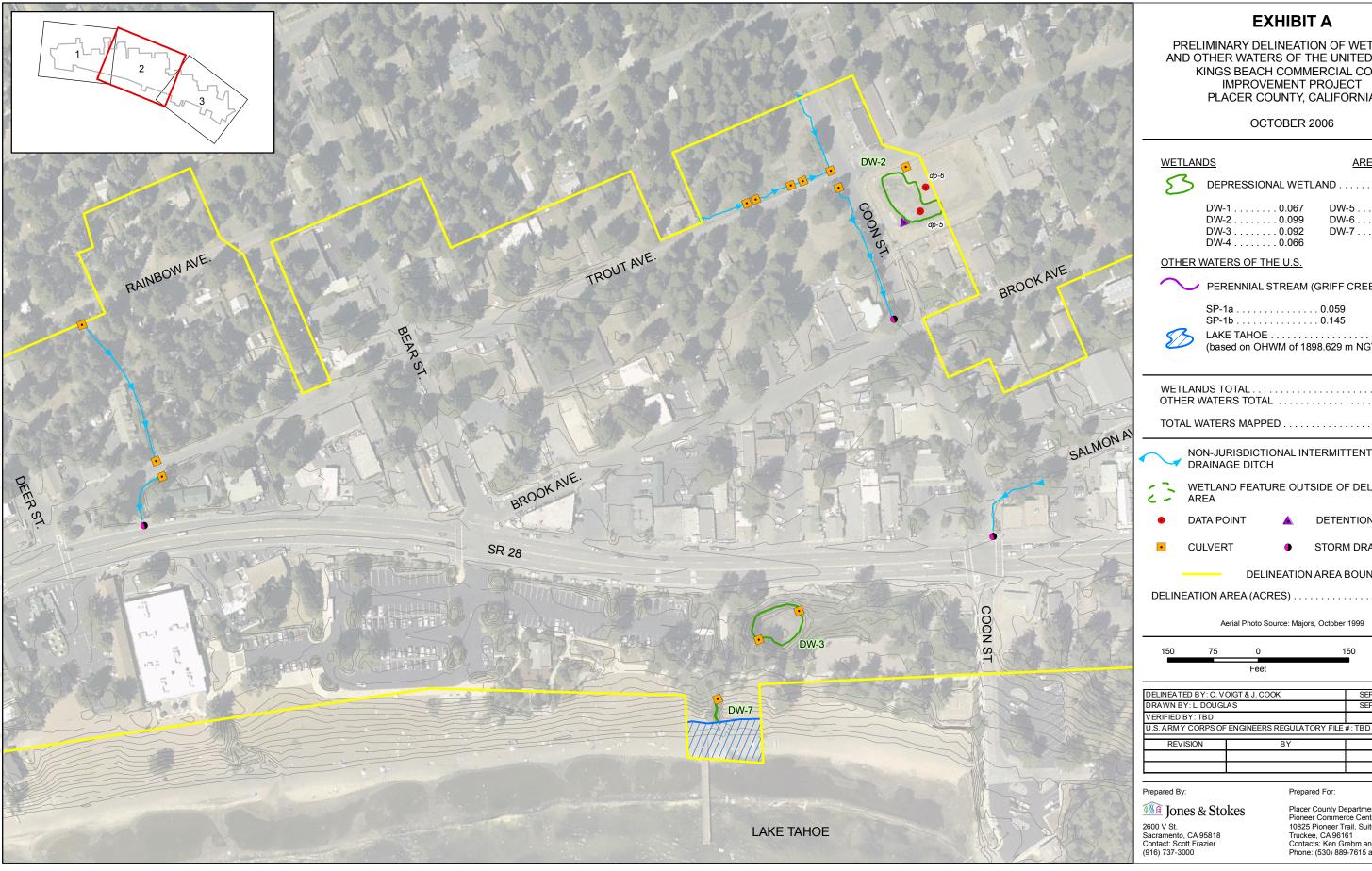


EXHIBIT A

PRELIMINARY DELINEATION OF WETLANDS AND OTHER WATERS OF THE UNITED STATES KINGS BEACH COMMERCIAL CORE IMPROVEMENT PROJECT PLACER COUNTY, CALIFORNIA

OCTOBER 2006

<u>WETLAN</u>	<u>IDS</u>			AREA (ACRES)
3	DEPRESSIO	NAL WE	ΓLAND	0.329
	DW-1 DW-2 DW-3 DW-4	0.099	DW-	-5 0.002 -6 0.002 -7 0.001
OTHER '	WATERS OF	ΓΗΕ U.S.		
\sim	PERENNIAL	.STREAM	(GRIFF	CREEK) 0.204
&	SP-1a SP-1b LAKE TAHO (based on O	 E	0.145	0.186 ຫ NGVD)
TOTAL V	VATERS MAPI	PED		0.719
	ON-JURISDIC [*] RAINAGE DIT(ITERMIT	TENT
•	ETLAND FEAT REA	TURE OUT	TSIDE OF	DELINEATION
• DA	TA POINT		DETEN	ITION BASIN DRAIN
• CL	JLVERT	•	STORM	I DRAIN INLET
	— DEI	_INEATIOI	N AREA E	BOUNDARY
DELINEAT	ION AREA (AG	CRES)		74.78
	Aerial Photo	Source: Majo	ors, October	1999
150	75 0 Fee	et	1	50
DELINEATED B DRAWN BY: L.	Y: C. VOIGT & J. C	COOK		SEPTEM BER 2006 SEPTEM BER 2006

Prepared By:

Jones & Stokes

2600 V St. Sacramento, CA 95818 Contact: Scott Frazier (916) 737-3000

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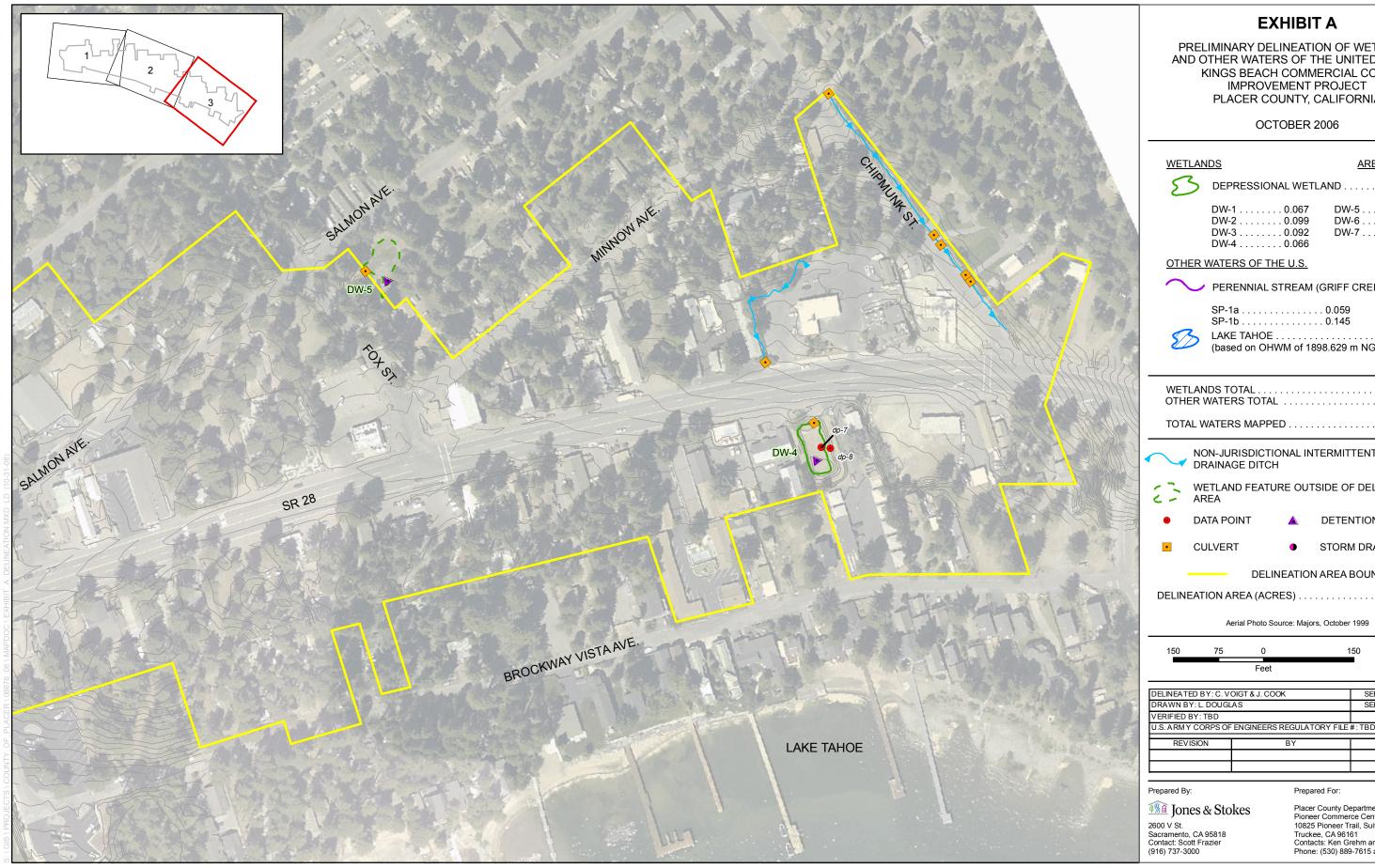


EXHIBIT A

PRELIMINARY DELINEATION OF WETLANDS AND OTHER WATERS OF THE UNITED STATES KINGS BEACH COMMERCIAL CORE IMPROVEMENT PROJECT PLACER COUNTY, CALIFORNIA

OCTOBER 2006

<u>WETLANDS</u>	AREA (ACRES)
DEPRESSIONAL WET	ΓLAND 0.329
DW-1 0.067 DW-2 0.099 DW-3 0.092 DW-4 0.066	DW-6 0.002
OTHER WATERS OF THE U.S.	
PERENNIAL STREAM	I (GRIFF CREEK) 0.204
SP-1a	0.145 0.186
WETLANDS TOTAL OTHER WATERS TOTAL	
TOTAL WATERS MAPPED	0.719
NON-JURISDICTIONAL IN DRAINAGE DITCH	ITERMITTENT
WETLAND FEATURE OUT	TSIDE OF DELINEATION
● DATA POINT ▲	DETENTION BASIN DRAIN
• CULVERT •	STORM DRAIN INLET
—— DELINEATION	N AREA BOUNDARY
DELINEATION AREA (ACRES)	74.78
Aerial Photo Source: Majo	ors, October 1999
150 75 0 Feet	150
DELINEATED BY: C. VOIGT & J. COOK	SEPTEMBER 2006
DRAWN BY: L. DOUGLAS	SEPTEMBER 2006

Prepared By:

Jones & Stokes

2600 V St. Sacramento, CA 95818 Contact: Scott Frazier (916) 737-3000

Prepared For:

Placer County Department of Public Works Pioneer Commerce Center 10825 Pioneer Trail, Suite 105 Truckee, CA 96161 Contacts: Ken Grehm and Dan LaPlante, P.E. Phone: (530) 889-7615 and (530) 581-6231

Appendix A Data Sheets



DATA FORM ROUTINE WETLAND DETERMINATION

JULIES & STOR	100		ROUTINE W	ETLAND DE	TERMINATION				
Project/Site:	Kings Beach Con	nmercial Co	re Improveme	nt Project	State:	California			
Applicant/Owner:	Placer County Department of Public Works			County:	Placer				
Investigator(s):	C. Voigt, J. Cook				S/T/R	13/16N/17E			
Date:	09/19/06								
Do normal circumstances	exist on the site?		✓ YES	NO	Community ID:	Depressional W	etland		
Is the site significantly dist	urbed (atypical situat	tion)?	YES	✓ NO	Transect ID:	DW-1			
Is the area a potential prol	olem area?		YES	✓ NO	Plot ID:	DP-1			
(If needed, explain below	v)								
VEGETATION									
Dominant Plant Species		Strata	% Rel. Cover	Indicator	Associate Plan	t Snecies	Strata	% Rel. Cover	Indicator
Juncus xiphioides		Н	50	OBL	7100001410 1 1411	Серобіоб	Olidia	70 Ttol. 00701	indicator
Carex amplifolia		H	50	OBL					
очнок аттритона			00	OBL					
Percent of dominants that	t are OBL, FACW, or	FAC (exclud	ling FAC-):	100%		Total veg	etation cover	90	%
Morphological Adaptations Physiological/Reproductive Adaptations Visual Observation of Plant Species Growing in Areas of Prolonged Inundation/Saturation					Personal Knowled Technical Literatur Other (explain belo	е	al Plant Commu	nities	
Hydrophytic Vegeta	ation Present?		✓ YES	NO					
Remarks:									
HYDROLOGY									
Is it the growing season?	YES	✓ NO							
Based On:	Soil Temp (record)				Wetland Hydrol	nav Indicators:			
Dadou 011.	Other (explain)		data from WF	2CC (2006)	Primary Indic				
Tunical langths		Davis			1 minary maic		ادم		
Typical length:	130	Days	5% =	6.5 days	+	Inundat			
							ed Upper 12 I	nches	
Recorded Data (describe	•					Water N			
	Stream, Lake, or Ti	de Gauge				☐ Drift Lin	es		
V	Aerial Photographs					Sedime	nt Deposits		
	Other					✓ Drainag	e Patterns in	Wetlands	
	None Available								
Field Observations:					Secondary Inc	dicators (2 or more i	equired):		
Depth of Su	rface Water	none	inches		Secondary in		. ,	es in Upper 12 I	nches
•	anding Water in Pit:	>12	inches				Stained Leave		1101100
Depth to Sa	•	>12	inches				oil Survey Da		
2000111000		- 12					eutral Test		
							explain below)	
Wetland Hydrology I	Present?		✓ YES	NO		27 % (4		,	
Remarks:									
The soil was wet thr	oughout but not sa	aturated, like	elv as the resu	It of recent so	prinkler irrigation).			

11/22/2006 DP-1 (revised)

SOLLS Plot ID: DP-1

JUILJ								Г	101 ID: DP-1
Map Unit Name	(series and)	phase):	Jabu stony sandy loa	m, mod. fine subs	oil, variant	, 2-9% slopes	Drainage Class:	Well-drained	
Taxonomy (subg	roup):	Ultic Haplox	eralfs			Field observati	ons confirm mappe	d type?	YES NO
Is data point loca	ated within a	hvdric inclus	ion?	YES VI	NO				
Profile Descripti		,							
· ·						Re	edoximorphic Featu	res	
	Depth			Matrix Co		Abundance,			
Horizon	(inches)	Texture	Structure	(moist	,	Size, Contrast	Type, location	Color (moist)	Other
	0-1 1-10	sil sl		10YR 3 10YR 3		none			
	10-12	xgrsl		10YR 3/4		none			***
			,						
Hydric Soil Indic	ators (check	all that apply	y):			Mp or Fo	Concretions or Nod	ules	
		Histic Epipe	don			_	anic Content in Surf		ndv Soils
		Sulfidic Odd					treaking in Sandy S	-	, 50
		Aquic Moist					National/Local Hydi		
	_		onditions (α , α -	dipyridyl test)			plain below)		
			ow-Chroma (<u><</u> 1) ma						
		Matrix Chro	ma <u><</u> 2 with Redoxin		_	nd/or Depletions	3		
Hydric Soils	Present?			✓ YES	NO				
WETLAND DE									
Hydrophytic ve	egetation pre	sent?			NO				
Wetland hydro		?			NO				
Hydric soils pro	esent?			✓ YES	NO	Is the sampling	ng point within a v	wetland?	✓ YES NO
Data point	is located	within a sec	diment detention b	oasin.					
	Textur	e and Roc	k Fragment Cont					rphic Feature	Morphology
Texture cos - coarse sand		vfsl - very fine	e sandy loam	gr - gravelly	S	Abundance f - few	e	Type Fe-y - iron co	oncentration (soft mass)
s - sand		I - loam	•	vgr - very gravell	y	c - commor	า		nodule or concretion
fs - fine sand		sil - silt loam		xgr - extremely g		m - many		-	ganese concentration (soft mass)
vfs - very fine sand lcos - loamy coarse		si - silt scl - sandy cla		cb - cobbly vcb - very cobbly	,	Size		Mn-nc - man d - depletion	ganese nodule or concretion
•									

ls - loamy sand cl - clay loam xcb - extremely cobbly Ifs - loamy fine sand sicl - silty clay loam st - stony vst - very stony xst - extremely stony sc - sandy clay lvfs - loamy very fine sand cosl - coarse sandy loam sic - silty clay sl - sandy loam c - clay fsl - fine sandy loam

1 - fine (<2mm) 2 - medium 2-5mm)

Location mat - soil matrix 3 - coarse (5-20mm) 4 - very coarse (20–76mm)

5 - extremely coarse (>76mm)

Contrast f - faint

d - distinct

p - prominent

ped - ped surface

por - soil pores otr - other

11/22/2006 DP-1 (revised)



DATA FORM ROUTINE WETLAND DETERMINATION

,				NOOTHIVE VI	7212/1140 01	- 1 - 1 (10)				
Project/Site:		Kings Beach Con	nmercial Co	re Improveme	nt Project	State:	California			
Applicant/Own	er:	Placer County Department of Public Works				County:	Placer			
Investigator(s):		C. Voigt, J. Cook	•			S/T/R	13/16N/17E			
Date:		09/19/06								
	umstances	exist on the site?		✓ YES	NO	Community ID:	Grassland			
	urbed (atypical situat	tion)?	YES	✓ NO	Transect ID:	DW-1				
Is the area a potential problem area? YES VO Plot ID:					Plot ID:	DP-2				
(If needed, e	xplain belov	v)								
VEGETATI	ION									
			Ctroto	% Rel. Cover	Indicator	Associate Diam	t Charles	Ctrata	0/ Dal Cavar	Indiantos
Dominant Pla	•		Strata		Indicator	Associate Plan	t Species	Strata	% Rel. Cover	Indicator
Populus tremu			T	40	FAC+					
Cornus sericea			S	20	FACW					
Lupinus latifolio			Н	20	NL					
Alnus incana s	sp. tenuifolia	9	Т	20	NI					
Percent of do	minants that	are OBL, FACW, or	FAC (exclud	ling FAC-):	50%		Total veg	etation cover	75	%
				,			_			•
	Morphologic	al Adaptations					Personal Knowled	dae of Region:	al Plant Commu	nities
		•	statione			ī	Technical Literatu			
Physiological/Reproductive Adaptations Visual Observation of Plant Species Growing in				in Aroas of			Other (explain be			
				III Aleas Oi			Other (explain be	iow)		
	Prolonge	ed Inundation/Satura	lion							
Hydrophy	tic Vegeta	ation Present?		YES	✓ NO					
Remarks:										
HYDROLO	GY									
Is it the growing	g season?	YES	✓ NO							
Based On:		Soil Temp (record)				Wetland Hydrol	ogy Indicators:			
Bacca On.	$\overline{\checkmark}$	Other (explain)		data from WR	2CC (2006)	Primary Indic				
The included by			D		` '	Filliary illuic				
Typical length:		130	Days	5% =	6.5 days	_	Inunda			
								ted Upper 12 I	nches	
Recorded Data	a (describe l	pelow):					Water I	Marks		
		Stream, Lake, or Ti	U				☐ Drift Lir	nes		
	✓	Aerial Photographs					Sedime	ent Deposits		
		Other					Draina	ge Patterns in	Wetlands	
		None Available								
Field Observa	tione:					Secondary Inc	dicators (2 or more	required):		
		rface Water:	none	inches		Secondary in			es in Upper 12 I	Inches
	•	inding Water in Pit:	>12	inches				Stained Leave		1101100
	Depth to Sat	-	>12	inches				Soil Survey Da		
	- op to out	aratoa com						eutral Test		
								explain below)	
Wetland H	ydrology F	Present?		YES	✓ NO		·			
Remarks:	. 0,									
iveillains.										

11/1/2006 DP-2

SOLLS Plot ID: DP-2

JUILS								Г	וסנ וט: טף-	-2
Map Unit Na	me (series and	phase):	Jabu stony sandy loa	m, mod. fine subs	soil, variant	, 2-9% slopes	Drainage Class:	Well-drained		
Taxonomy (s	eralfs			Field observation	eld observations confirm mapped type?			NO		
ls data point l	located within a	hydric inclus	ion?	YES ✓	NO					
Profile Descr	ription									
						Re	edoximorphic Featu	res		
	5 4			Matrix Oalan						
Horizon	Depth (inches)	Texture	Structure	Matrix C (moist		Abundance, Size, Contrast	Type, location	Color (moist)		Other
	0-12	sl		10YR 3	3/3	none				
Hydric Soil Ir	ndicators (check	all that appl	y):							
		Histosol					Concretions or Nod			
		Histic Epipe					nic Content in Surf treaking in Sandy S	-	ndy Soils	
		Sulfidic Odd Aquic Moist					treaking in Sandy S National/Local Hydi			
			onditions (α , α -	dinyridyl test)			olain below)	ic Solis List		
			ow-Chroma (<u><</u> 1) ma			Outlot (oxp	siaiii bolow)			
		-	ma <u><</u> 2 with Redoxin		trations ar	nd/or Depletions	5			
Hydric So	ils Present?			YES	✓ NO					
Remarks:			lue to cobbles.							
	DETERMINA									
	c vegetation pre				NO					
Wetland hy Hydric soils	drology present	.?			✓ NO	1 d P				
Remarks:				YES	✓ <mark>NO</mark>	is the sampling	ng point within a v	wetiand?	YES	✓ NO
Data po	oint is located	on a narrov	v mound that exte	nds into the s	ediment (detention basi	n.			
	Textur	e and Roc	k Fragment Cont	tent			Redoximo	rphic Feature	Morpho	logy
Texture				Rock Fragment	s	Abundance	e	Туре		
cos - coarse sa s - sand	and	vfsl - very fine	e sandy loam	gr - gravelly vgr - very gravell	V	f - few c - commor	1	Fe-x - iron co		,
fs - fine sand		sil - silt loam		xgr - extremely g		m - many				centration (soft mass)
vfs - very fine s		si - silt		cb - cobbly				Mn-nc - man	ganese noo	dule or concretion
Icos - loamy co	s - loamy coarse sand scl - sandy clay loam			vcb - very cobbly	/	Size d - depletion				

Is - loamy sand Ifs - loamy fine sand cl - clay loam sicl - silty clay loam xcb - extremely cobbly st - stony lvfs - loamy very fine sand sc - sandy clay vst - very stony cosl - coarse sandy loam sic - silty clay xst - extremely stony sl - sandy loam fsl - fine sandy loam c - clay

1 - fine (<2mm) 2 - medium 2–5mm)

3 - coarse (5-20mm) 4 - very coarse (20-76mm)

5 - extremely coarse (>76mm)

Contrast f - faint

d - distinct

Location mat - soil matrix ped - ped surface por - soil pores otr - other

p - prominent

DP-2

11/1/2006



DATA FORM ROUTINE WETLAND DETERMINATION

,		ROOTIIVE	WEILMID		
Project/Site:	Kings Beach Commercial (Core Improver	nent Project	State:	California
Applicant/Owner:	Placer County Department	of Public Wor	ks	County:	Placer
Investigator(s):	C. Voigt, J. Cook			S/T/R	19/16N/18E
Date:	09/19/06				
Do normal circumstances	exist on the site?	✓ YES	NO	Community ID:	Depressional Wetland
Is the site significantly dis	turbed (atypical situation)?	YES	✓ NO	Transect ID:	DW-6
Is the area a potential pro	blem area?	YES	✓ NO	Plot ID:	DP-3
(If needed, explain below	w)				
VEGETATION					

Dominant Plant Species	Strata	% Rel. Cover	Indicator	Associate Plant Species		Strata	% Rel. Cover	Indicator
Juncus mexicanus	Н	75	FACW	Tanacetum vulgare		Н	5	NL
Carex amplifolia	Н	20	OBL					
Percent of dominants that are OBL, FACW, or	FAC (exclud	ing FAC-):	100%		Total veg	etation cover	75	%
Morphological Adaptations Physiological/Reproductive Adap Visual Observation of Plant Spec	cies Growing	in Areas of			Personal Knowled Technical Literatu Other (explain bel	re	al Plant Commu	nities
Hydrophytic Vegetation Present?		✓ YES	NO					
Remarks:								

HYDROLOGY Is it the growing season?	YES	✓ NO							
Based On:	Based On: Soil Temp (record)		data from WRCC (2006)		Wetland Hydrology Indicators: Primary Indicators:				
Depth to S	130	Ü	5% = inches inches inches	6.5 days	,		Inundated Saturated Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands or more required): Oxidized Rhizospheres in Upper 12 Inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (explain below)		
Wetland Hydrology	Present?		✓ YES	□ NO					
Remarks: Manmade bank of bank is less well defined by the bank is	•	along the n	orth side of	the roadside dra	inage ditch but o	n the sou	uth side of the ditch (closest to the road) the		

11/1/2006 DP-3

SUILS								P	lot ID: DP-3	
Map Unit N	ame (series and p	hase):	Jabu stony sandy loa	m, mod. fine subs	soil, variant	., 2-9% slopes	Drainage Class:	Well-drained		
Taxonomy (subgroup): Ultic Haploxeralfs						Field observation	ons confirm mappe	d type?	YES NO	
	t located within a h			YES 🗸	NO			,,		
Profile Desc		., and moids								
						Re	edoximorphic Featu	ires		
							. ,	-	†	
	Depth			Matrix Color		Abundance,				
Horizon	(inches)	Texture	Structure	(moist)		Size, Contrast	Type, location	Color (moist)	Other	
	0-13	sl		10YR 3/1		none				
Hydric Soil	Indicators (check	all that appl	y):					Į —	1	
		Histosol				Mn or Fe	Concretions or Nod	ules		
		don			High Orga	nic Content in Surf	ace Layer of Sa	ndy Soils		
		Sulfidic Odd	r			Organic S	treaking in Sandy S	Soils		
		Aquic Moist				Listed on I	National/Local Hyd	ric Soils List		
	Reducing Conditions (α , α -					Other (exp	olain below)			
	=	•	ow-Chroma (<u><</u> 1) ma							
		Matrix Chro	ma <2 with Redoxin			nd/or Depletions	3			
Hydric S	oils Present?			✓ YES	NO					
WETLAND	DETERMINAT	ION :								
Hydrophyt	tic vegetation pres	sent?		✓ YES	NO					
Wetland h	nydrology present?	?		✓ YES	□ NO					
Hydric soi	ils present?				NO	Is the samplir	ng point within a	wetland?	✓ YES NO	
Remarks							<u> </u>			
inunda	tion is present fo	or sufficien	t duration during t	the course of	the year	to support suc	h vegetation.			
Texture and Rock Fragment Content										
	Texture	and Roc	k Fragment Con	tent			Redoximo	rphic Feature	• Morphology	
Texture				Rock Fragment	ts	Abundance		Туре		
cos - coarse s	sand	vfsl - very fine		Rock Fragment gr - gravelly		f - few	е	Type Fe-x - iron c	oncentration (soft mass)	
	sand			Rock Fragment	ly		е	Type Fe-x - iron co		mass)

vfs - very fine sand lcos - loamy coarse sand cb - cobbly vcb - very cobbly xcb - extremely cobbly scl - sandy clay loam cl - clay loam ls - loamy sand Ifs - loamy fine sand sicl - silty clay loam st - stony lvfs - loamy very fine sand sc - sandy clay vst - very stony cosl - coarse sandy loam sic - silty clay xst - extremely stony sl - sandy loam fsl - fine sandy loam c - clay

Size 1 - fine (<2mm) 2 - medium 2-5mm) 3 - coarse (5-20mm)

Mn-nc - manganese nodule or concretion d - depletion

4 - very coarse (20-76mm)

5 - extremely coarse (>76mm)

Contrast f - faint

d - distinct

p - prominent

Location

mat - soil matrix ped - ped surface por - soil pores otr - other

11/1/2006 DP-3